

Claims

1. Method to act upon at least two recipients (10, 11, 12) of a pneumatic system in an alternating manner, in particular a pneumatic massage system of a motor vehicle seat, with a pressure medium flow, characterized in that at least one, first air cushion (10, 11, 12) that serves as a recipient (10, 11, 12) is filled with a gaseous working fluid, while the working fluid is actively suctioned off from at least one other, second air cushion (10, 11, 12).
2. Method according to Claim 1, characterized in that the pressure in the at least one, to be-emptied recipient (10, 11, 12) is used to fill the at least one, to-be-filled air cushion (10, 11, 12).
3. Method according to Claim 1 or 2, characterized in that the alternating filling of at least two air cushions (10, 11, 12) is achieved by a reversal of the rotational direction of a pump (22) conveying the working fluid.
4. Method according to Claim 3, characterized in that the motor speed of a motor driving the feed pump (22), in particular an electric motor (24, 92), is presettable.
5. Method according to one of the preceding claims, characterized in that the final pressure in the at least one, to-be-filled recipient (10, 11, 12) and/or the frequency of the working fluid acting upon the at least two recipients (10, 11, 12) in an alternating manner is/are presettable.
6. Method according to Claim 5, characterized in that the final pressure in the at least one, to-be-filled recipient (10, 11, 12) and/or the frequency of the working fluid acting upon the at least two recipients (10, 11, 12) in an alternating manner is/are presettable manually via corresponding operating elements in the vehicle.
7. Method according to Claim 5, characterized in that the final pressure in the at least one, to-be-filled recipient (10, 11, 12) and/or the frequency of the working fluid acting upon the at least two recipients (10, 11, 12) in an alternating manner is preset by a control unit (93) in accordance with the signals of at least one sensor (95), in particular a sensor to detect occupation of the seat.

8. Method according to one of Claims 5, 6 or 7, characterized in that the final pressure in the at least one, to-be-filled recipient (10, 11, 12) and/or the frequency of the working fluid acting upon the at least two recipients (10, 11, 12) in an alternating manner is controlled or regulated by a constriction (34, 44, 58) of the pressure medium flow on the pressure side (20) of the feed pump (22), in particular by a throttling valve (34, 44, 58).
9. Method according to one of Claims 5, 6 or 7, characterized in that the final pressure in the at least one, to-be-filled air cushion (10, 11, 12) and/or the frequency of the working fluid acting upon the at least two recipients (10, 11, 12) in an alternating manner is controlled or regulated by actuating a bypass (32) between the suction side (18) and the pressure side (20) of the feed pump (22).
10. Pneumatic circuit to act upon recipients (10, 11, 12) of a pneumatic system in an alternating manner, in particular a pneumatic massage system of a motor vehicle seat, with a pressure medium flow, with at least two recipients (10, 11, 12) to alternately receive a pressure medium flow, with at least one pump (22) conveying the pressure medium flow as well as with driving means (24) for the feed pump (22) and with connecting means (14, 16, 18, 20, 88, 90, 94, 96, 98) between the feed pump (22) and the recipients (10, 12, 12) to be acted upon by the working fluid, characterized in that the at least one, first recipient (10, 11, 12) is connected to the at least one, second recipient (10, 11, 12) via the connecting means (14, 16, 18, 20, 88, 90, 94, 96, 98) and the feed pump (22).
11. Pneumatic circuit according to Claim 10, characterized in that the at least two recipients (10, 11, 12) are connected to the at least one feed pump (22) via the connecting means (14, 16, 18, 20, 88, 90, 94, 96, 98) in such a way that the working fluid pumped out of the at least one, first recipient (10, 11, 12) can be supplied to the at least second recipient (10, 11, 12).
12. Pneumatic circuit according to Claim 10 or 11, characterized in that the suction side (18) of the at least one feed pump (22) is connected to at least one, first recipient (10, 11, 12), while the pressure side (20) of the feed pump (22) is simultaneously connected to at least one, second recipient (10, 11, 12).

13. Pneumatic circuit according to one of the preceding Claims 10, 11 or 12, characterized in that the suction side (18) of the feed pump (22) is connected to at least one, first recipient (10, 11, 12) via a component (36, 100, 102, 104) controlling the pressure medium flow, while the pressure side (20) of the pump (22) is simultaneously connected to at least one, second recipient (10, 11, 12).
14. Pneumatic circuit according to Claim 13, characterized in that the pressure side (20) of the feed pump (22) is also connected to the same component (36, 100, 102, 104) controlling the pressure medium flow.
15. Pneumatic circuit according to Claim 13 or 14, characterized in that the pressure control means (36, 100, 102, 104) features a pneumatically driven actuator (36, 100, 102, 104).
16. Pneumatic circuit according to Claim 15, characterized in that the pressure control means (36, 100, 102, 104) features at least one valve.
17. Pneumatic circuit according to one of the preceding Claims 10 to 16, characterized in that the feed pump (22) is a vane-cell pump, in particular a vane-cell pump with means to reverse the rotational direction.
18. Pneumatic circuit according to one of the preceding Claims 10 to 17, characterized in that the circuit features at least one output valve (26), which opens a connecting line (28, 14, 18, 88) when a specific pressure limit is reached on the suction side (18) of the pump (22) in order to supply additional working fluid to the system.
19. Pneumatic circuit according to one of the preceding Claims 10 to 18, characterized in that the circuit features at least one sensor element (95), which acquires information about the occupation of the seat and transmits this information to a control unit (93) for the pneumatic circuit.
20. Vehicle seat, in particular for a motor vehicle, with at least two recipients (10, 11, 12) integrated into the seat, which recipients are to be acted upon in an alternating manner with a pressure medium flow, characterized in that the acting upon of the recipients (10, 11, 12) takes place in accordance with a method as defined by one of the Claims 1 to 9.